

# THE INFORMATION REVOLUTION

PLANNING FOR | INSTITUTIONAL CHANGE



INFORMATION TECHNOLOGY

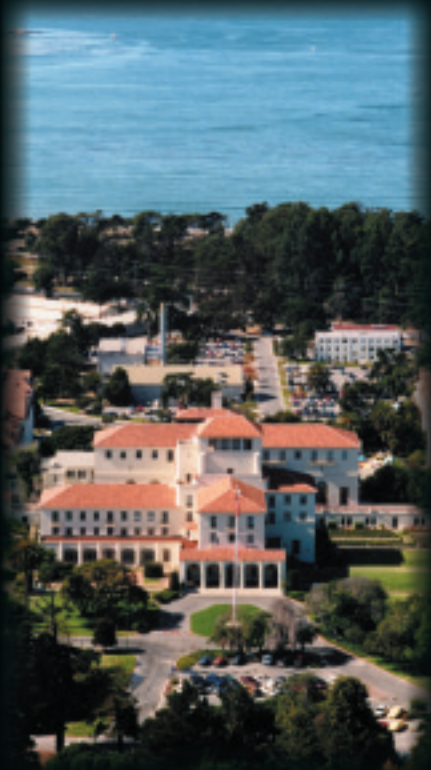
STRATEGIC PLAN

NAVAL POSTGRADUATE SCHOOL

MONTEREY · CALIFORNIA

"AT THE NAVAL POST-GRADUATE SCHOOL, INFORMATION TECHNOLOGY IS MISSION-CRITICAL AND VISION DRIVEN. WE ARE COMMITTED TO PROVIDING A RESEARCH UNIVERSITY ENVIRONMENT THAT ENERGIZES LEARNING AND DISCOVERY. IN TODAY'S WORLD, THAT MEANS INVESTING IN LEADING EDGE INFORMATION TECHNOLOGY AND USING THAT TECHNOLOGY TO SUPPORT A CULTURE OF INNOVATION FOR OUR FACULTY AND STUDENTS. IT ALSO MEANS REACHING OUT TO OUR DOD CONSTITUENCIES TO PROVIDE THE EDUCATION AND TRAINING THEY NEED – WHEREVER THEY ARE IN THE WORLD AND WHEREVER THEY NEED IT."

- REAR ADMIRAL  
DAVID R. ELLISON, USN,  
SUPERINTENDENT



## NPS INFORMATION TECHNOLOGY

Information Technology (IT) is central to the mission of the Naval Postgraduate School in every dimension: research, education, and service to the Navy and the Department of Defense. NPS Internet usage doubles annually. The percentage of students using e-mail has risen from under 10 percent a decade ago to 100 percent today. High performance computing used to be something accessed by just a few researchers at NPS; now it is an essential tool for most simulation and modeling work in meteorology and other sciences. Visualization technology until recently was considered intriguing but mostly inaccessible; now it is required for collaborative work. Wireless technology, previously unreliable and limited in capacity, is now used by both faculty and students. Large-scale multimedia communications were previously available in limited venues at universities; now our service mission depends on being able to communicate with and provide education to students all over the globe.

The examples are many, but all tell the same story. Information technology and the environment made possible and enhanced by IT is intellectually exciting, challenging, and ever-changing. How a university engages that environment to inform and enrich its mission is a central question of this new century.

## URGENCY OF IT CHANGE

Faced with meeting the above challenges, NPS leadership charged the Information Technology Task Force with the development of a plan that would candidly assess strengths and weaknesses of existing IT operations, as well as craft a blueprint for action to improve the current IT environment.

With charge in hand, the IT Task Force engaged in numerous campus interviews and meetings about current IT support, examined reports and data evaluating current IT services, made site visits to other universities, and reviewed best practices within the Department of Defense. The IT Task Force concluded that the Naval Postgraduate School has an imperative question to answer:

Will NPS refocus institutional priorities and resources so that NPS can become a leader in redefining graduate and professional education for the information age?

If the answer to that question is yes, then the institution must work

quickly to invest in the areas of academic applications and services, administrative systems, and network infrastructure. NPS must involve the university community in overseeing these investments and in developing performance measures to mark progress.

If the answer to that question is no, then the institution will face even greater challenges in remaining a competitive institution of higher education.

## THE IT STRATEGIC PLAN

Change associated with Information Technology is inevitable, time-sensitive, and largely unpredictable. The following IT Strategic Plan recognizes these qualities of the information revolution and offers recommendations that can be implemented with flexibility in mind. In addition, the IT Strategic Plan realizes that continuous evaluation and review will be necessary – so that emerging technologies and opportunities can be factored into operational plans.

The goals of the IT Strategic Plan are:

- *To emphasize the fact that investment in Information Technology is critical to the success of all institutions of higher learning ... and that IT is mission-critical to NPS.*
- *To improve communication about IT as a strategic NPS priority.*
- *To demonstrate to the NPS community and its stakeholders that IT is a strategic issue that directly affects NPS academic excellence.*
- *To identify ways to improve the technological support for NPS core mission of teaching, research, and service to the Navy and Department of Defense.*
- *To focus on improving students' educational experience by incorporating technology into the means and methods of instruction.*
- *To identify ways to improve the management and financial support of IT services.*
- *To document the need to invest in high-performance computing, multi-media technology, educational technology and distance education technology.*



“INFORMATION TECHNOLOGY IS A PRIORITY FOR ALL OF OUR ACADEMIC ASPIRATIONS AT NPS. WE MUST ENSURE THAT OUR INTELLECTUAL WORK IS SUPPORTED AND CHALLENGED BY THE MOST EXCITING TECHNOLOGICAL TOOLS AND METHODS AVAILABLE. WHETHER WE ARE TALKING ABOUT ENERGIZING THE EDUCATIONAL EXPERIENCE ITSELF OR EXPANDING OUR INSTITUTIONAL REACH THROUGH COLLABORATION WITH COLLEAGUES AT OTHER INSTITUTIONS OR THROUGH DISTANCE LEARNING, IT IS CENTRAL TO OUR PLANNING.”

- DR. RICHARD S. ELSTER,  
PROVOST AND  
ACADEMIC DEAN

"CHANGE DEFINES THE FUTURE. AS THE CORPORATE UNIVERSITY OF THE NAVY, WE MUST SERVE AS AN ENABLER OF CHANGE. IT PROVIDES A POWERFUL LANDSCAPE OF OPPORTUNITIES TO DO JUST THAT. WHETHER IN OUR ACADEMIC ENTERPRISE OR WITHIN OUR ADMINISTRATIVE AREAS, WE MUST CHALLENGE THE PRESENT WITH THE POSSIBILITIES THAT IT PROVIDES."

- DR. CHRISTINE M. CERMAK,  
CHIEF INFORMATION  
OFFICER

## THE FOLLOWING IS A BRIEF SUMMARY OF THE TOPICAL CATEGORIES OF RECOMMENDATIONS WITHIN THE INFORMATION TECHNOLOGY STRATEGIC PLAN.

### NETWORK INFRASTRUCTURE

The NPS network infrastructure must be updated. To meet increasing demands on IT by our academic community, NPS should immediately upgrade the network infrastructure and increase access bandwidth to the Internet. This would alleviate two critical issues: the fact that the current infrastructure technology is out of date and the exponential growth of demand on access must be addressed.

This plan also accounts for emerging technologies and issues that NPS must continue to assess and incorporate if the school is to remain a leader in IT for the Navy and the Department of Defense.

### ACADEMIC APPLICATIONS AND SERVICES

NPS classroom environments have not kept pace with peer institutions. NPS must maintain an acceptable level of electronically equipped, network-capable, and modern teaching facilities. This can be achieved with a modest increase in the funding for classrooms.

In addition to the teaching facilities, the level of IT support staff has faced heavy setbacks in the face of rapid increase in the level of support required by the faculty and students. The number of IT support staff has been significantly reduced over the past seven years (from 114 to 58). To alleviate this deficit, additional staff are required for instructional technology, research, high-performance computing, high-end IT application support and software consulting.

Acquisition of hardware and software must be institutionalized with a sufficient and consistent budget. This method allows for dramatic savings due to large-scale purchases and software licensing contracts. To maintain the flow of communications about changing needs among our academic constituents, a faculty advisory group, with representatives from all academic departments and institutes, can offer recommendations about the purchase and maintenance of appropriate hardware and software technology.





## ADMINISTRATIVE APPLICATIONS AND SERVICES

Today's web environment at NPS is a disparate collection of school, departmental and research web sites. A new information architecture that goes beyond the functions of the current NPS Intranet is needed. Consolidating all the disparate applications and information at NPS would help enable a new operating environment where faculty, staff and students would have the information and tools necessary to greatly improve the quality and efficiency of graduate and professional education.

NPS must put into place a new web-based information architecture that will leverage innovative technology to provide a robust, self-service working environment to our constituents. An NPS Portal is essential to improved information architecture. The NPS Portal web browser interface can serve as the entry point for faculty, students and staff to access information, tools and training particular to their roles and work requirements, as well as provide security for the information that is generated by our university.

## IT MANAGEMENT AND RESOURCES

In order to fulfill its role as a mission critical resource, IT must offer service at the highest level of excellence. To do so, the IT division should be managed with the highest degree of accountability and responsiveness to institutional goals.

With regard to resources, data were reviewed from a number of other institutions. The results show NPS central IT services are substantially under resourced by comparison. Recommendations include increasing investments in the IT operating budget, IT human resources and IT capital expenditures.

## COMMUNICATIONS, PARTNERSHIP AND OUTREACH

Since IT is a strategic institutional priority, communication about IT matters must be frequent, timely and accessible to all members of the NPS community. In addition, external communications about IT events and news should be part of the IT communications strategy, and an integral part of the larger advancement strategic plan for NPS. Ongoing efforts to develop partnerships with other institutions and with other Department of Defense organizations should be supported so that NPS can explore ways of leveraging its IT investment with peer institutions.



## NETWORK INFRASTRUCTURE

- Build up-to-date maps of the network infrastructure.
- Replace much of the in-ground network conduit plant.
- Immediately upgrade the network infrastructure.
- Expand the connection bandwidth to the Internet.
- Develop wireless network technologies and policies. Institutionalize wireless.
- Expand NPS capabilities for remote access to network information.
- Monitor and report all remote access capability via the intranet web site.
- Appoint a joint NPS and NMCI engineering team to evaluate the level of NMCI enrollment for NPS.
- Appoint a team of NPS faculty, staff and students to review and performance-test the NMCI capabilities and report the results to NMCI and NPS leadership.
- Assign central IT operations with responsibility for Internet2 membership support.
- Formalize processes to continually evaluate emerging technologies.
- Expand the usage and capabilities of video technology.
- Provide resources to develop and maintain IT security plans, policies and procedures.
- Conduct security audits on a regular basis.
- Identify a crisis response team.
- Develop a central plan for systems and data redundancy and backup.

## ACADEMIC APPLICATIONS AND SERVICES

### Instruction

- Accelerate the FY2002-2009 Lab, Library, LAN, and Classroom funding plans.
- Invest in the systems and processes that will enable delivery of classes to off-campus students.
- Provide the same services to Distance Learning students as resident students.
- Increase the number of IT staff to support instruction.
- Establish IT “design teams” to work with faculty in the development of IT-based materials for instruction.
- Build a clearinghouse for IT instructional materials.
- Resource and develop data portals, interactive websites and data delivery systems.

### Research

- Increase the number of IT staff to support research.
- Provide research IT support for advanced computation, data visualization, data and network security.
- Provide planning and coordination in support of the academic, research and administrative network requirements.
- Provide leadership in partnering with other institutions and consortia to further expand the reach of the NPS network.
- Provide a vehicle for collaboration with our graduates.

## ADMINISTRATIVE APPLICATIONS AND SERVICES

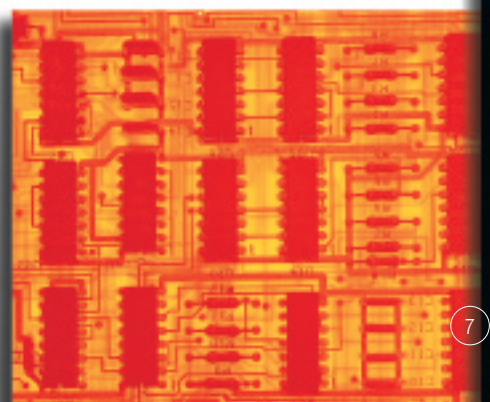
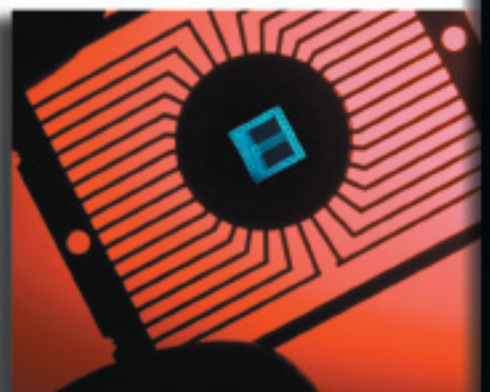
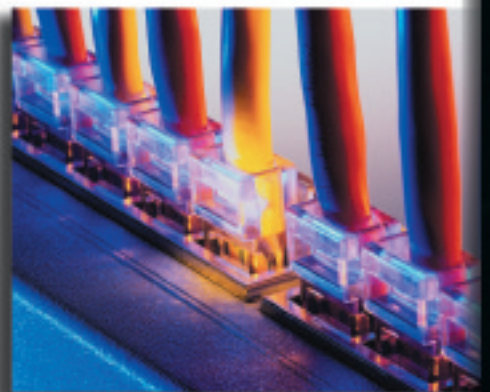
- Prioritize administrative applications.
- Web-enable business applications with back-end integration.
- Develop a portal model that migrates from static web pages to a database driven environment.
- Develop a prototype corporate portal template.

## IT MANAGEMENT AND RESOURCES

- Institute management practices that include: updated organizational chart and staff titles, communication plan, documented IT budget process, centralized compilation of all IT related policies, publication of services.
- Establish an IT planning process to centrally control acquisition and life cycle maintenance of hardware and software for academic and research use. Include IT operating policies.
- Centrally coordinate software licensing in IT to exploit economies of scale. Maintain and publish, on Intranet home pages, updates to the inventory of available software.
- Ensure IT is involved in all appropriate macro-level planning initiatives.
- Include IT leadership at the highest-level institutional meetings.
- Develop and maintain an IT strategic plan that supports the larger academic plan.
- Develop an annual IT report.
- Institutionalize faculty, student and staff input and guidance to IT-related issues.
- Include an IT review of all IT related proposals.
- Encourage departmental partnerships.
- Provide a customer satisfaction feedback system.
- Establish cooperative relationships with other institutions.
- Formally include all IT requirements in the planning for renovations and construction at NPS.
- Undertake and publish results of a benchmarking study of peer institutions that can be used as a baseline for planning.
- Ensure individual schools and departments include IT needs and priorities in their annual reports to the Provost.
- Make recruitment and retention of talented IT staff an NPS priority.
- Perform a review of the IT positions and personnel policies and practices.
- Perform a review of compensation levels for IT staff.
- Establish a program of professional development.
- Increase the number of IT staff personnel in the areas of network engineering, administrative systems and academic services for instruction and research.
- Regularly seek out customer opinions and advice.
- Collaborate with departments to develop a program of workshops, training classes, seminars and online resources for the NPS community.

## COMMUNICATIONS, PARTNERSHIP, AND OUTREACH

- Increase the frequency and expand the modalities of communications about NPS IT.
- Communicate IT commitment to consultation, information-sharing, and reflective practice in order to better support collaboration and effective decision-making.
- Include IT services in larger NPS advancement efforts.
- Develop a publication describing IT services at NPS.
- Design an IT training program for campus constituencies.
- Coordinate IT-related corporate and vendor relations within central IT services.
- Establish consortial relationships with local Department of Defense organizations.
- Establish consortial relationships to access high-speed networks within the state.
- Make outreach to local communities a part of the central IT agenda.
- Identify budget shortfalls each year so that opportunities to extend programmed budget with research related resources are possible.





# INFORMATION TECHNOLOGY STRATEGIC PLANNING TASK FORCE

Chris Arias .....	Student Services	Lillian Gassie.....	Library
Alex Bordetsky .....	Information Sciences	Tom Halwachs.....	Chief Technology Officer
Doug Brinkley .....	Business	Tracy Hammond.....	Registrar
Don Brutzman .....	Faculty Council	Stephen Hurst.....	Defense Resource Management Institute
Christine Cermak .....	Chief Information Officer	Alan Jones.....	IT Department
Glenn Cook .....	Information Sciences	Shu Liao .....	Business
Lisa Curtin .....	Dean of Students	Beny Neta .....	Mathematics
Vince Darago .....	Office of Continuous Learning	Rudy Panholzer.....	Space Systems
Dean Ebert.....	Student Council	Megan Reilly .....	Chief Financial Officer
Douglas Fouts .....	Electrical and Computer Engineering	Joe Roth.....	Student Council
Jack Gallagher.....	Financial Planning		



## NAVAL POSTGRADUATE SCHOOL